

Noemacheilus beavani, *N. botia*, *N. montanus*, *N. rupicola*, *Glyptothorax brevipinnis alaknandi*, *G. pectinopterus*, *G. garhwali*, *Pseudecheneis sulcatus* lay eggs under stones and, therefore, the chances of getting these ova fertilised are rather remote when the male shed spermatid fluid over them. Sometimes the fertilised eggs get swept away with the torrential flood as is the case in majority of other hill-stream fishes. It has been observed that the fry and fingerlings of many of these species are carried away along with the irrigation

water into nearby paddy fields where they die in large numbers when the water evaporates or is absorbed by soil. The fry of *Glyptothorax pectinopterus*, *G. brevipinnis alaknandi*, *Pseudecheneis sulcatus* and species of *Noemacheilus* suffer in large numbers in this manner.

Predatory fishes like *Mastacembelus armatus* are also responsible for the low survival rate of juveniles of many species because they feed on the eggs, fry and fingerlings of many fishes like *Noemacheilus* spp., *Barilius* spp. and *Schizothorax richardsonii*, etc.

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27. PISE DAM — AN ECOLOGICAL DISASTER FOR THE
FRESHWATER PIPE-FISH *DORYICHTHYS CUNCALUS*
(HAM.-BUCH.)

(With a text-figure & a map)

Among the fishes displayed at the Taraporevala Aquarium, Bombay, a popular exhibit used to be a freshwater pipe-fish, *Doryichthys cuncalus* (Hamilton-Buchanan),

because of its unique shape and swimming habits, and the peculiar breeding behaviour where the male carries the eggs in a brood-pouch on its abdomen.

The pipe-fish was collected from the Bhatsa, a tributary of the Ulhas River near Titvala, a railway station on the Bombay-Nasik line 65 kilometres from Bombay. Another tributary, Kalu, also joins the Ulhas River nearby Titvala. This portion of the river is under tidal influence, the seawater rushing up during spring tides from the dual opening of the Ulhas River near Thane and Bassein.

Pipe fishes, like their cousins the sea horses, are basically marine fishes, but a few species have migrated upstream into rivers where they live in fresh water, in shallows where aquatic weeds abound. The slender body of the pipe fish serves as an ideal camouflage, enabling it to hide in the slender eel-grass (*Vallisneria*).

Doryichthys cuncalus (the trivial name was spelt *cunculus* by Day and Munro, and Rahman has followed this practice) was first described by Hamilton-Buchanan in 1822 (Fishes of the Ganges, page 12) as *Syngnathus cuncalus*. The presence of dorsal, anal and pectoral fins distinguishes the genus from *Penetopteryx* (where all these fins are absent), *Nannocampus* (in which there are no pectoral fins), and *Stigmatoporus*, *Solegnathus*, *Halichthys* and *Hippocampus* (which have no tail fin).

The superior cristae of the trunk and tail are discontinuous. The median cristae of the

trunk bend down at the anus and are continuous with the inferior cristae of the tail (Fig. 1). There is a rectilinear keel on the opercle. The base of the dorsal fin is not raised. The egg pouch is abdominal, unlike *Syngnathus*, where it is sub-caudal.

Jayaram (1981) lists six species of *Doryichthys* as visiting fresh water, viz. *D. chokderi* Rahman (1976, page 47), *D. cuncalus* (Ham.-Buch., 1822, page 12), *D. deocata* (Ham.-Buch., 1822, page 14), *D. dunckeri* Prashad & Mukerji (1929, page 222), *D. insularis* Hora (1925, page 38) and *D. ocellatus* Duncker. Of these, *D. dunckeri* has been recorded only from Burma, *D. ocellatus* from Sri Lanka, *D. chokderi* from Bangladesh, and *D. insularis* from the North Andaman Is. in the Bay of Bengal. The remaining two species, viz. *D. cuncalus* and *D. deocata*, occur on the Indian mainland and in Bangladesh (*D. cuncalus* also occurs in Sri Lanka).

Of the six species, only *D. chokderi* and *D. cuncalus* have more than 40 rays on the dorsal fin. *D. cuncalus* has 16-18 rings on the body, and 25-27 rings on the tail. The dorsal fin starts on the 15th or 16th trunk ring and extends over 10 rings (sometimes on 11). It has 50-51 rays. (In the specimens in the present collection, there are 53 rays.) A fine ridge runs from between the eyes to the tip

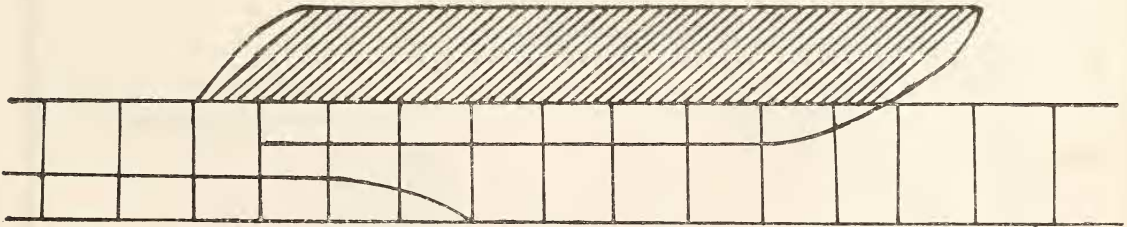


Fig. 1. Region below dorsal fin of *Doryichthys cuncalus* (Ham.-Buch.) showing configuration of the cristae (diagrammatic).

of the snout, and another from behind the eye to over the pectoral fin. The anus is situated on the 17th trunk ring. The superior cristae of the trunk extend to the middle of the tail, and the superior cristae of the tail start from this ring. The tail is 1.8 to 2.0 times in the total length.

The fin-ray count is : *D.* 50-53; *P.* 16-18; *A.* 2-3; *C.* 8-9.

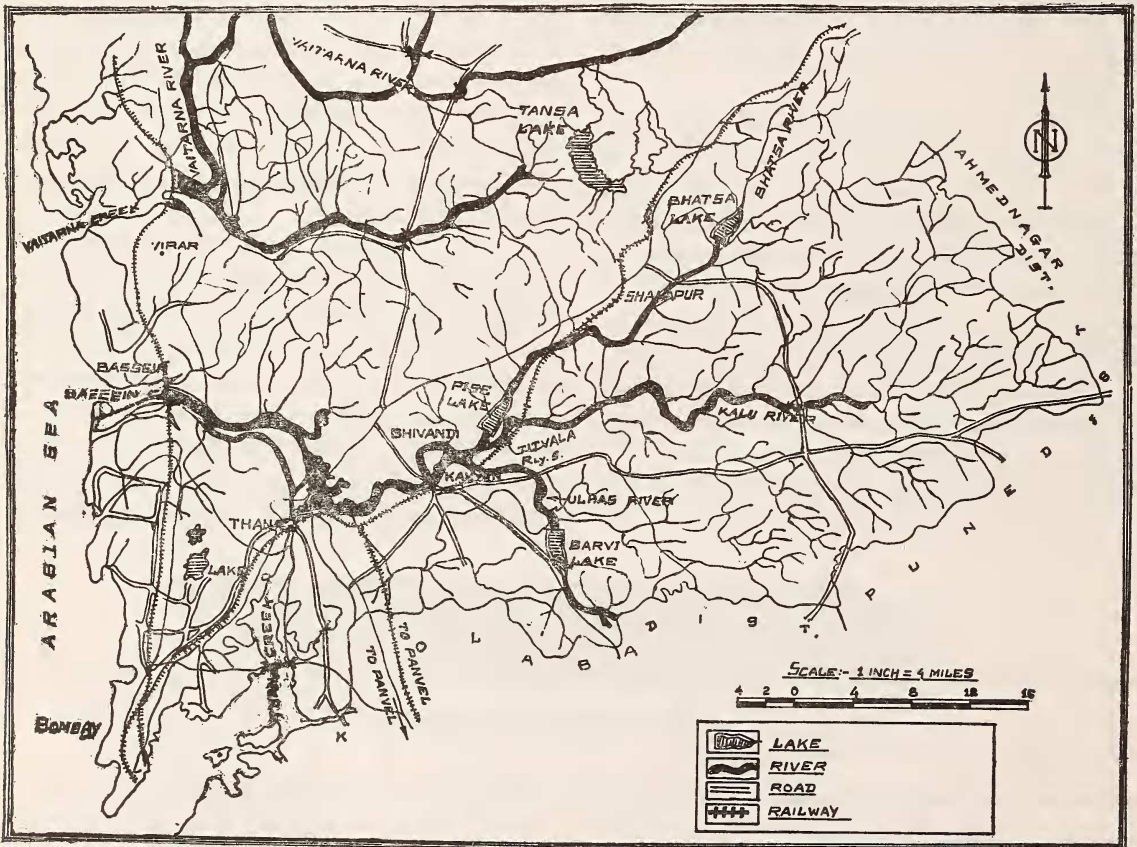
The total lengths of adults from Titvala vary from 13 to 14.7 cm.

Weber & De Beaufort, in their synonyms for *Microphis brachyurus* (1922, page 44),

give *Syngnathus cunculus* Bleeker, *Microphis cunculus* Bleeker, and *Doryichthys bleekeri* Day. But these pipe fishes are not *Doryichthys cunculus* because the dorsal fin-rays for *Microphis brachyurus*, according to them, number 36 to 48, whereas Day gives the fin-ray count for *D. cunculus* as 50, and Rahman gives 50-51. Dawson (1985), in his book on Indo-Pacific pipefishes, describes it as *Microphis cunculus*.

D. cunculus is common in the rivers and estuaries in many parts of India.

The Pise Dam was constructed in 1979 by



Map. 1. Map of western Maharashtra showing location of Pise Dam.

MISCELLANEOUS NOTES

the Bombay Municipal Corporation as an anicut or pick-up weir into which flows the water coming from the Bhatsa Dam. Prior to the impoundment of water above the Pise Dam, *D. cuncalus* could be easily collected in large numbers in the shallows of the Bhatsa River near Titvala, and Kulkarni (1953), in the first of a popular series on Native Aquarium Fishes, named this fish *Syngnathus kalyanensis*, calling it "apparently a new species, and being so far unrecorded." He did not, however, follow up this statement with a detailed description of the fish (personal communication), although he had stated that "a systematic description of this new species is being published separately." In extensive collections in this region over many years, we have never come across any specimens of *Syngnathus* — a genus where the brood pouch is sub-caudal.

Since this fish has not been bred in captivity, it is not known if the young require a sojourn in brackish water in order to grow. If so, the adult would necessarily have to migrate downstream to the estuarine regions where perceptible salinity occurs. Since their natural haunts, in the shallows, are now in-

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undated by the waters rising above the Pise Dam, this pipe-fish, unfortunately, has vanished in these regions. Although common in many rivers in India, its localized occurrence in a limited stretch of the Ulhas River has apparently led to its extermination here.

Four specimens of this pipe-fish have been deposited in the British Museum (Natural History).

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28. *NEMIPTERUS PERONII* (VALENCIENNES 1830) (PISCES: NEMIPTERIDAE) — A NEW RECORD FROM INDIAN WATERS

(With a text-figure)

Thread fin breams of the genus *Nemipterus* constitute a commercially important fishery along the Indian coast. The species are chiefly caught by trawl nets, occasionally by hand lines and hooks and lines. Of the twenty species of the genus recorded from the Indo-Australian Archipelago (Weber & de Beaufort 1936), only five are reported from the Indian seas by Day (1878) under the generic name of *Synagris*. They are *S. striatus* (= *N. nematophorus*), *S. tolu*, *S. bleekeri*, *S. notatus* (= *N. hexodon*) and *S. japonicus*. Later, *Nemipterus mesoprion* and *N. delagoae* were also recorded from Indian waters (Sriramachandra Murthy 1978, Rajagopalan *et al.* 1977; Srinivasa Rao & Manikyala Rao *in press*).

Twenty specimens of *Nemipterus peronii* were collected from the hand line catches obtained from the northern fishing grounds off Tuticorin (8°48'N 78°11'E) on 22-1-1980. Hitherto, the species was recorded from the coasts bordering South China Sea (Weber & de Beaufort 1936, Wongratana 1970, Senta

& Tan 1975, Weber & Jothy 1977) and Pakistan (Supanovic & Mohiuddin 1973) only. The occurrence of *N. peronii* off Tuticorin establishes the continuity of the geographical distribution of the species, which extends from South China Sea to Western Indian Ocean (Arabian Sea). A comparison of the characters of the species from the three areas, namely Tuticorin, Thailand (Wongratana 1970) and Batavia and Celebes (Weber & de Beaufort 1936) is made to find out whether or not there is any geographical gradation in the characters.

Nemipterus peronii (Valenciennes) (Fig. 1)

Dentex peronii Valenciennes, in Cuvier & Valenciennes, *Hist. Nat. Poissons*, VI, 1830, p. 245.

Synagris peronii Gunther, *Cat. Brit. Mus.*, I, 1859, p. 376.

Dentex hypselognathus Bleeker, *Versl. Akad. Amsterdam*, XIII, (1872) 1873, *Revision Dentex*, p. 9; *Atlas Ichth.*, VIII, 1876-1877, p. 84.